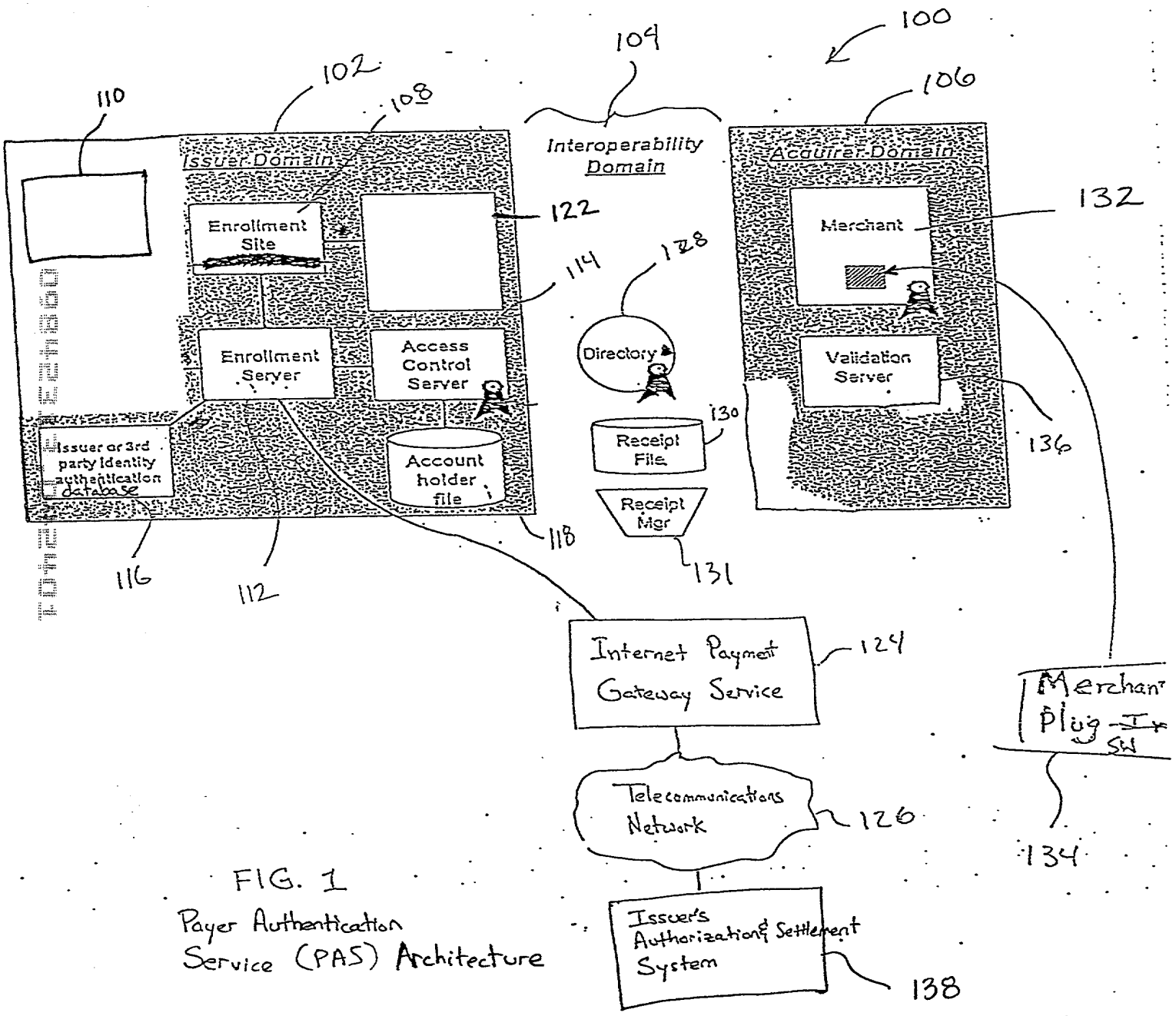


FIG. 1
Payer Authentication Service (PAS) Architecture

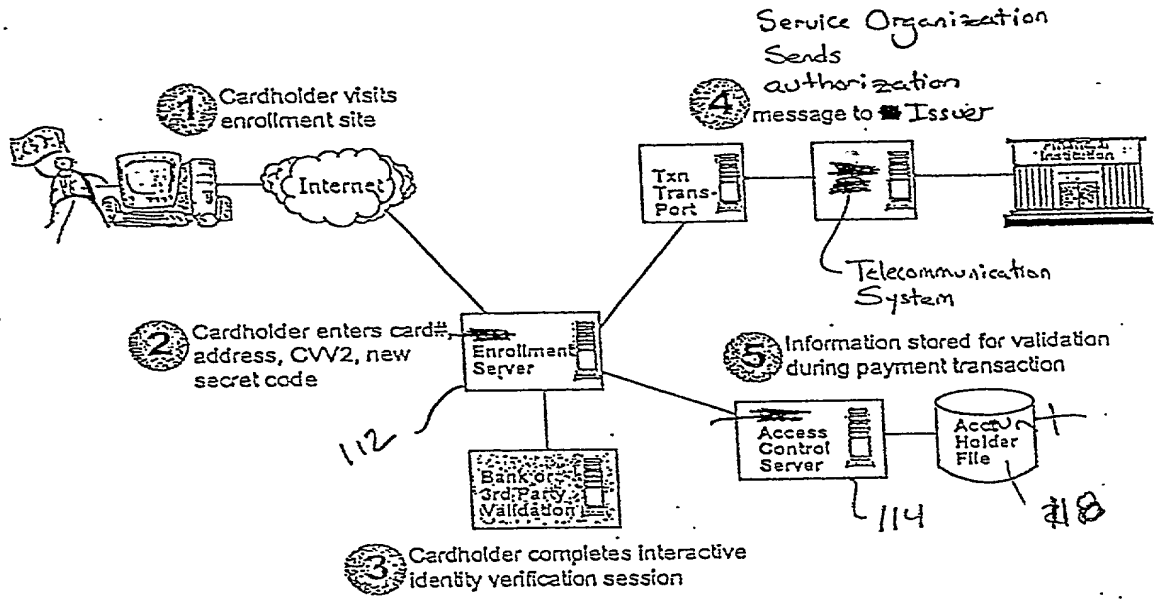


FIG. 2

Cardholder Registration

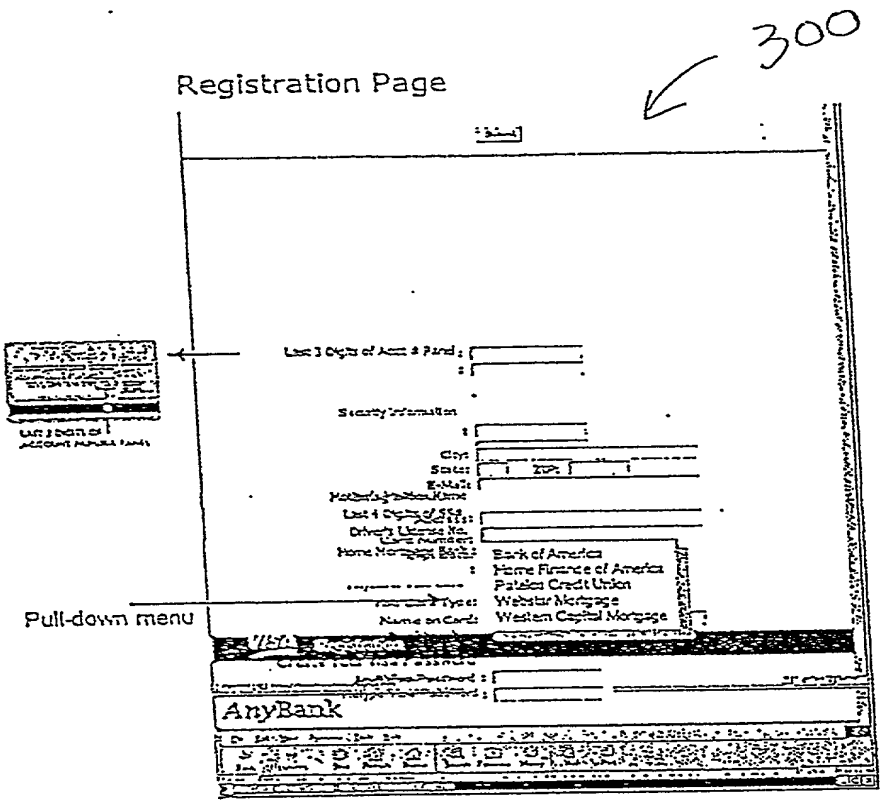

300
Registration Page
Pull-down menu
Bank of America
Home Finance of America
Patelco Credit Union
Webster Mortgage
Western Capital Mortgage
AnyBank

FIG. 3

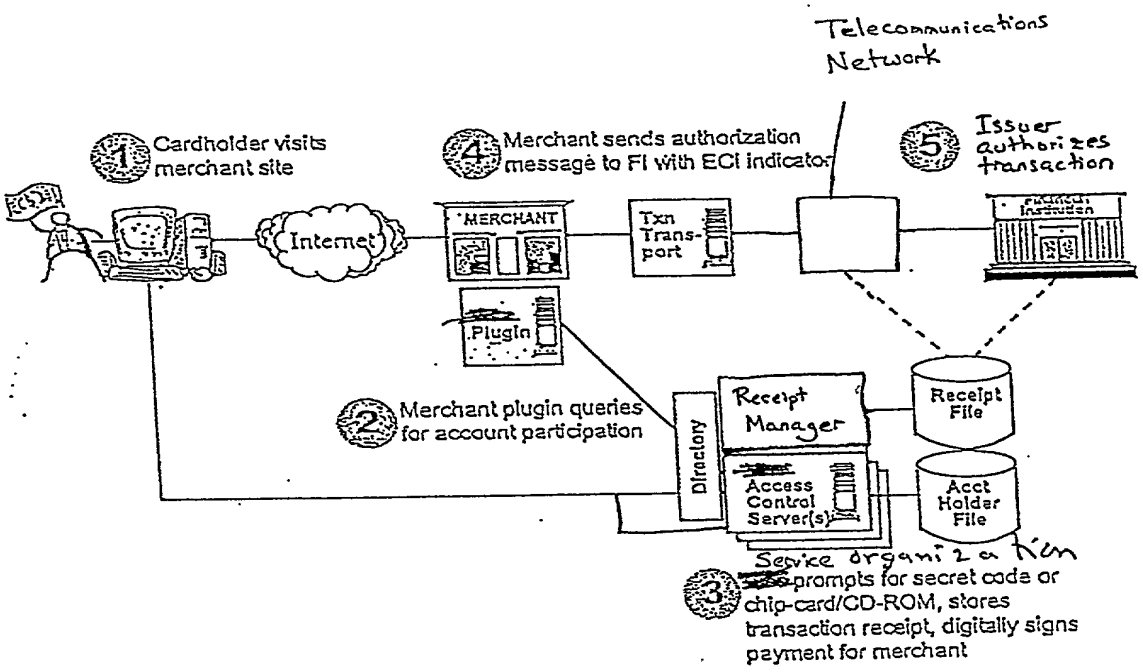


FIG. 4
Payment Transaction

Doc Code: CLEAR.PUB.NO

500

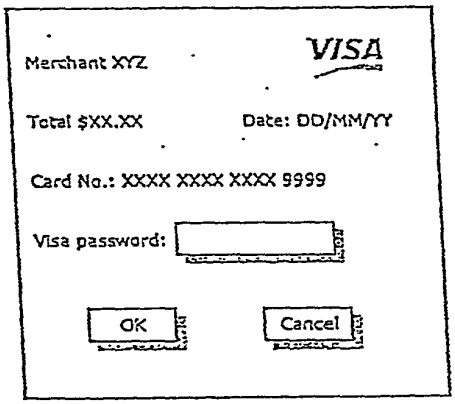


FIG. 5

Payment Transaction

Cardholder Password Prompt

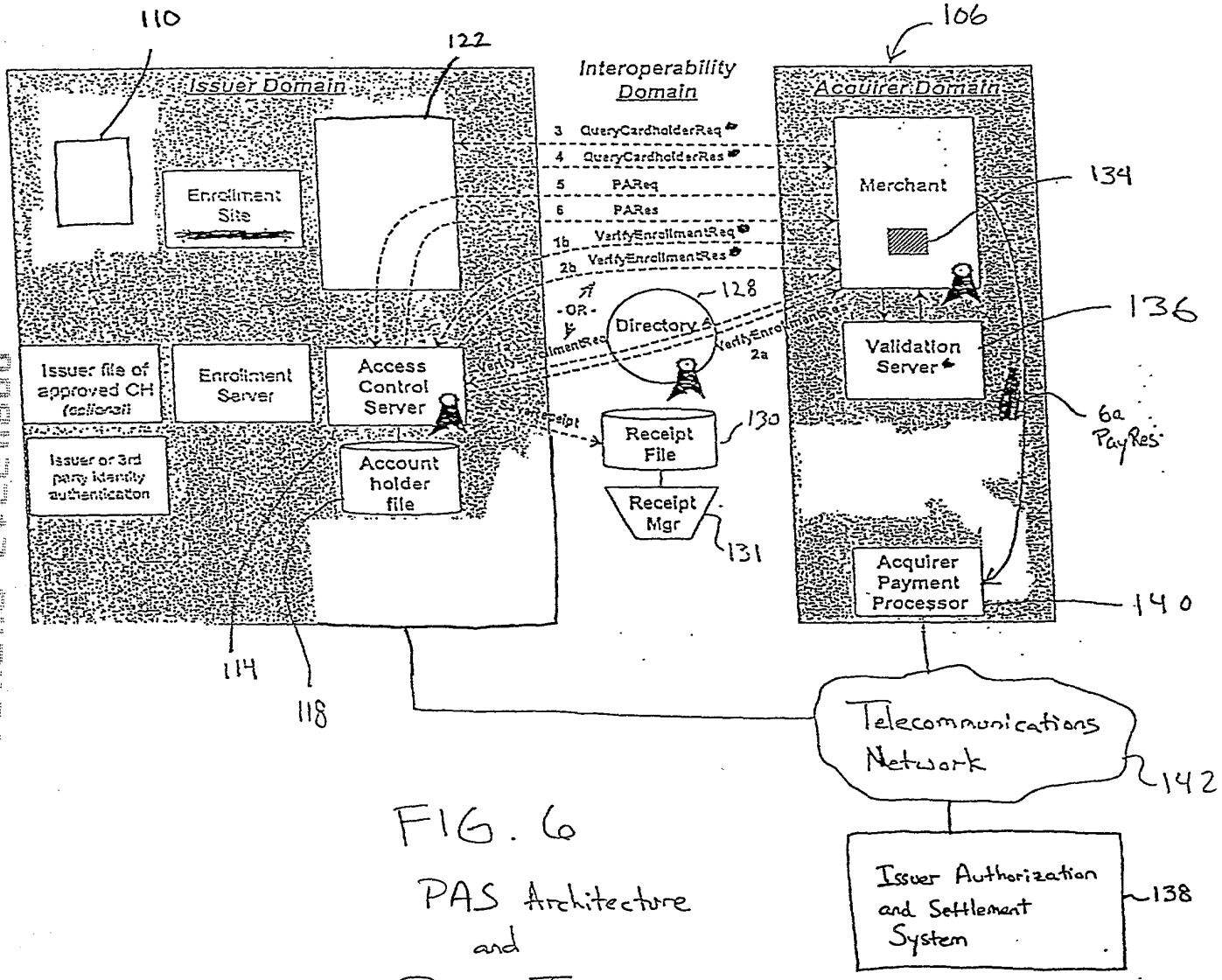


FIG. 6

PAS Architecture and Payment Transaction

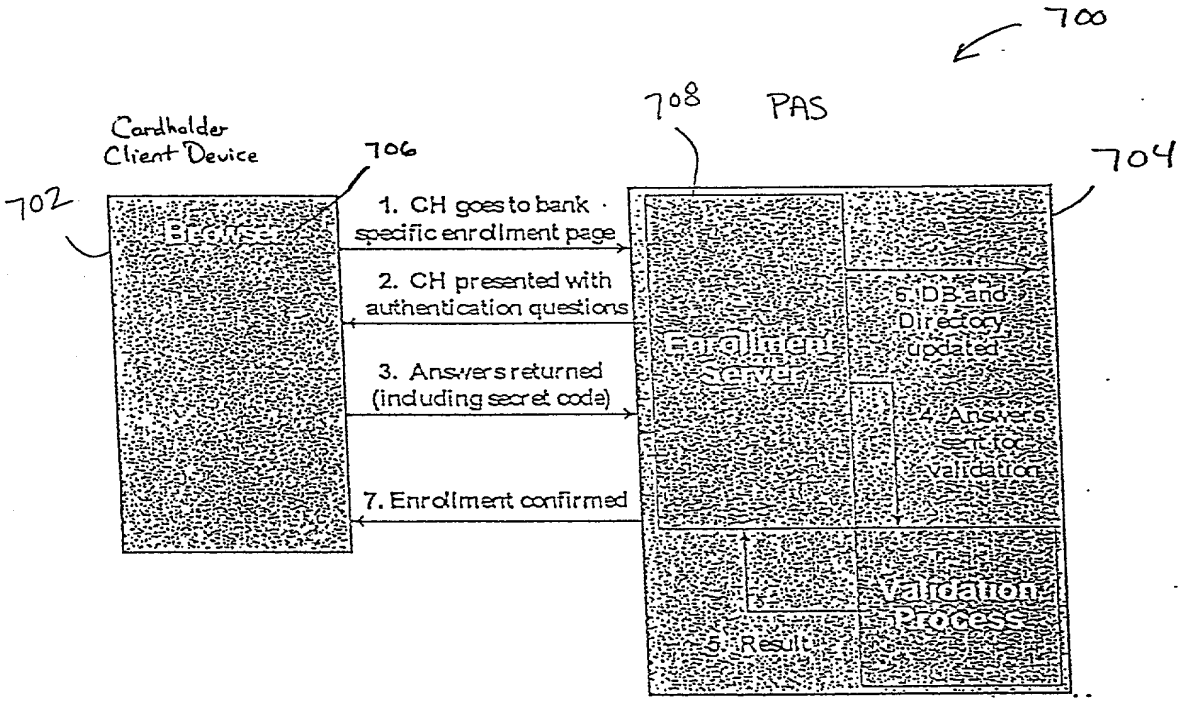


FIG. 7

Centralized Enrollment Flow

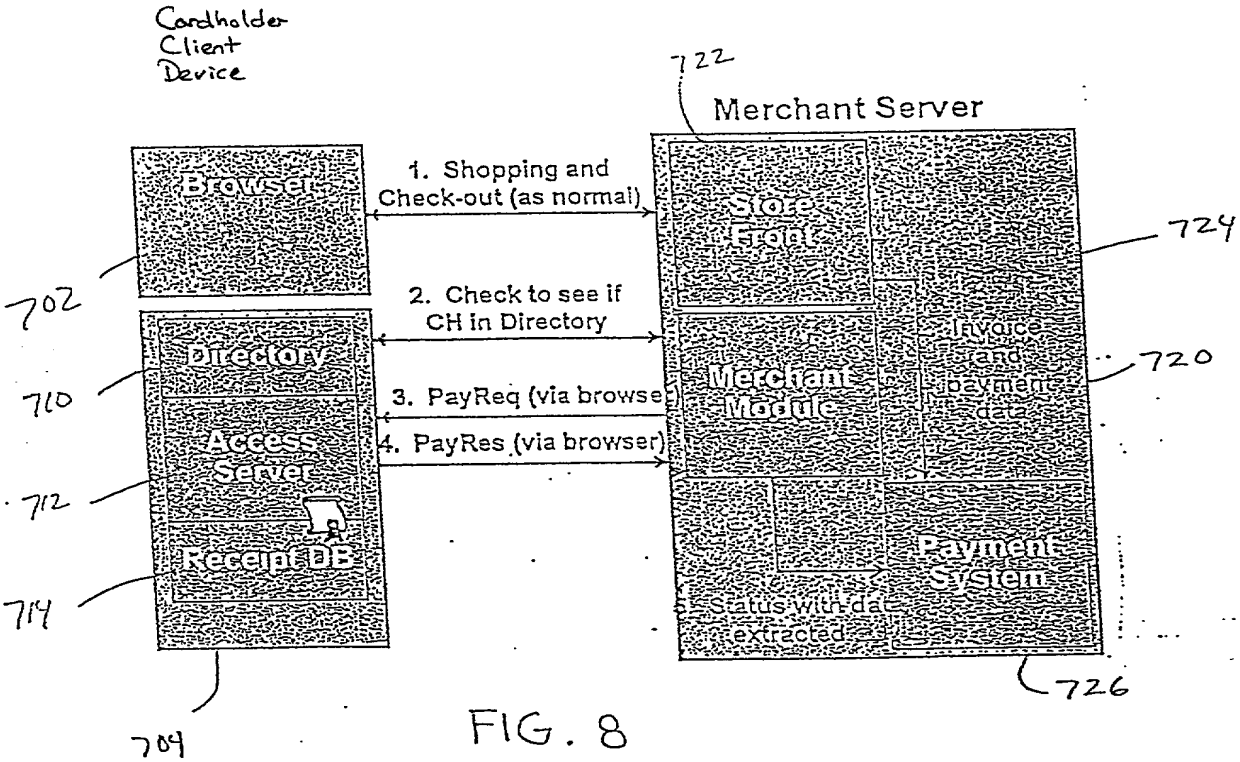


FIG. 8

Centralized Payment Flow

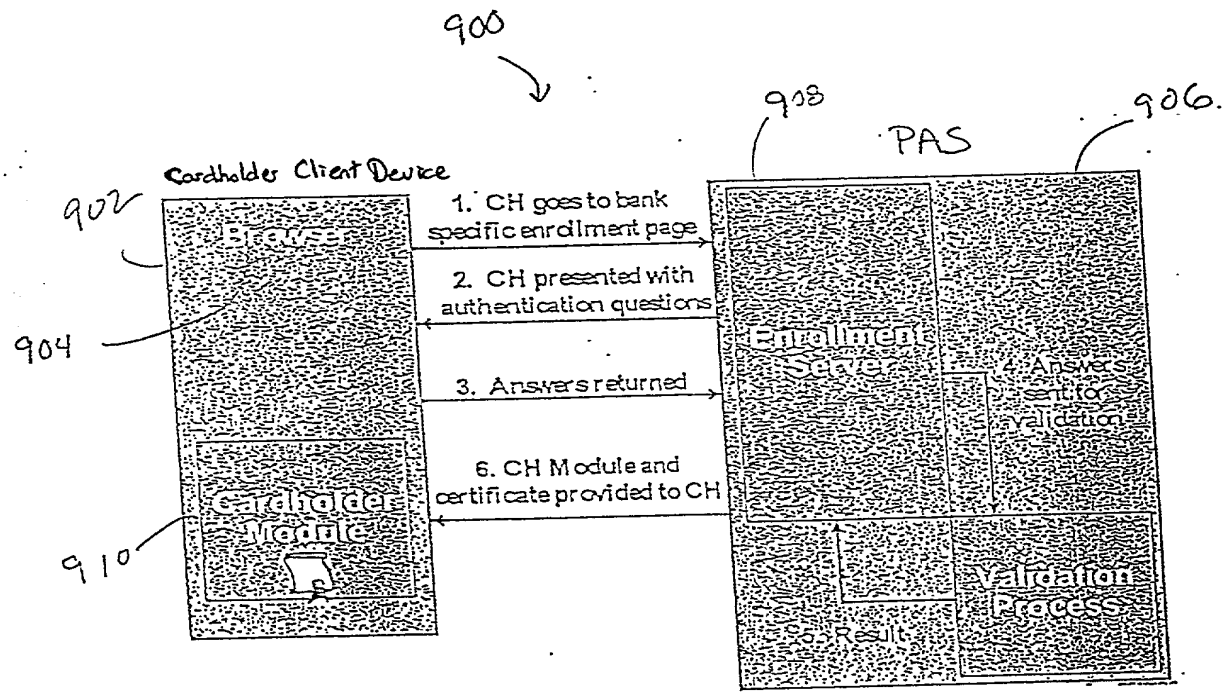


FIG. 9

Distributed Enrollment Flow

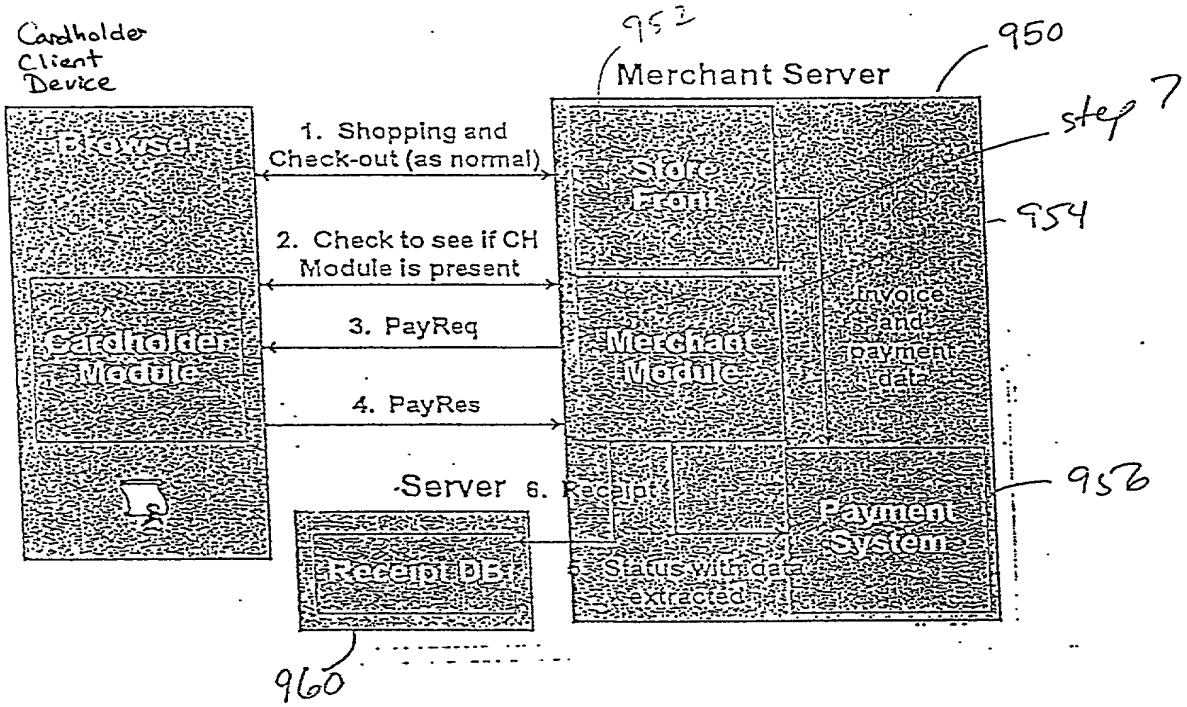


FIG. 10

Distributed Payment Flow

Toltech Exhibit

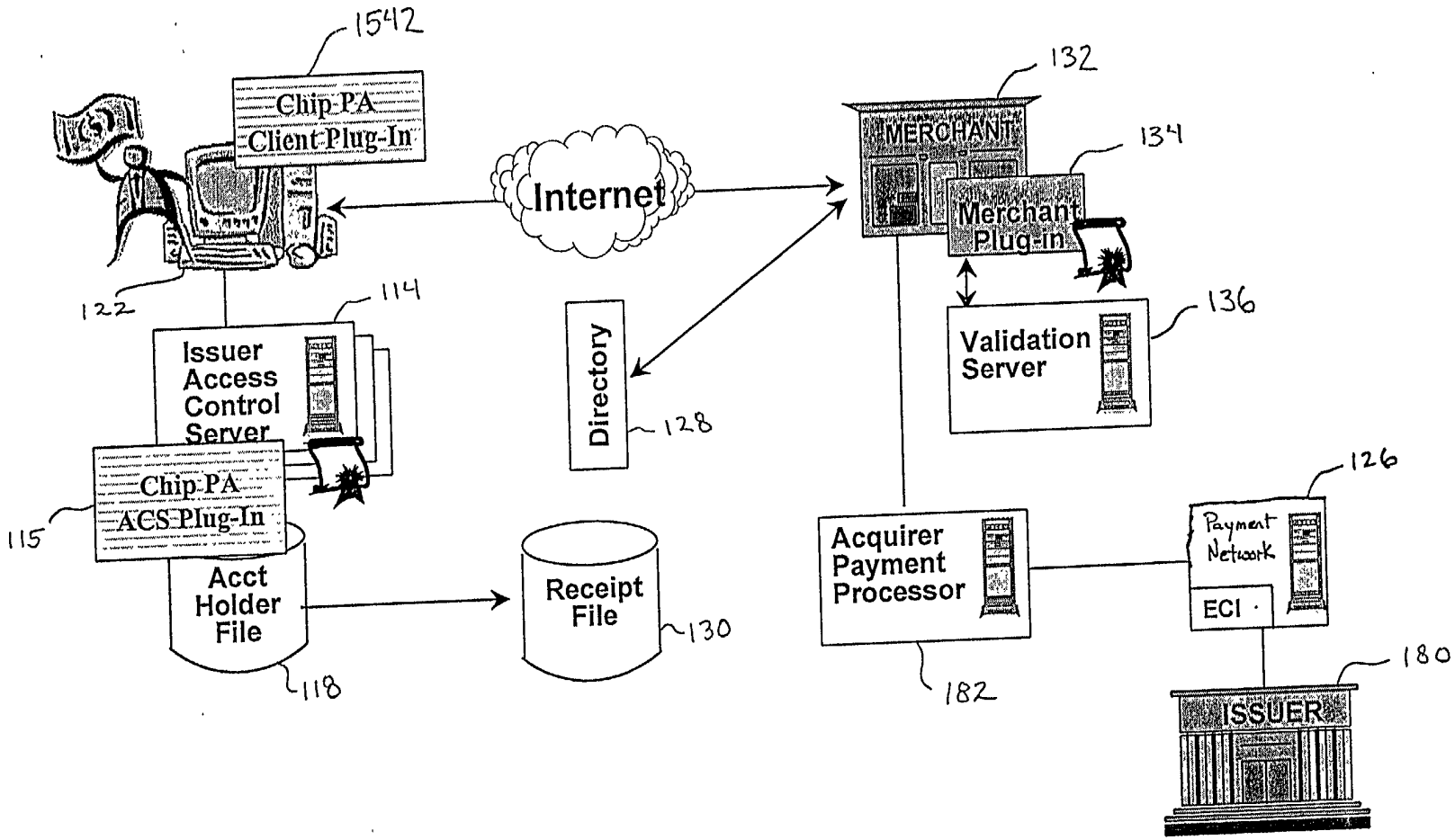


FIG. 10A
Chip Card Payer Authentication Service Architecture

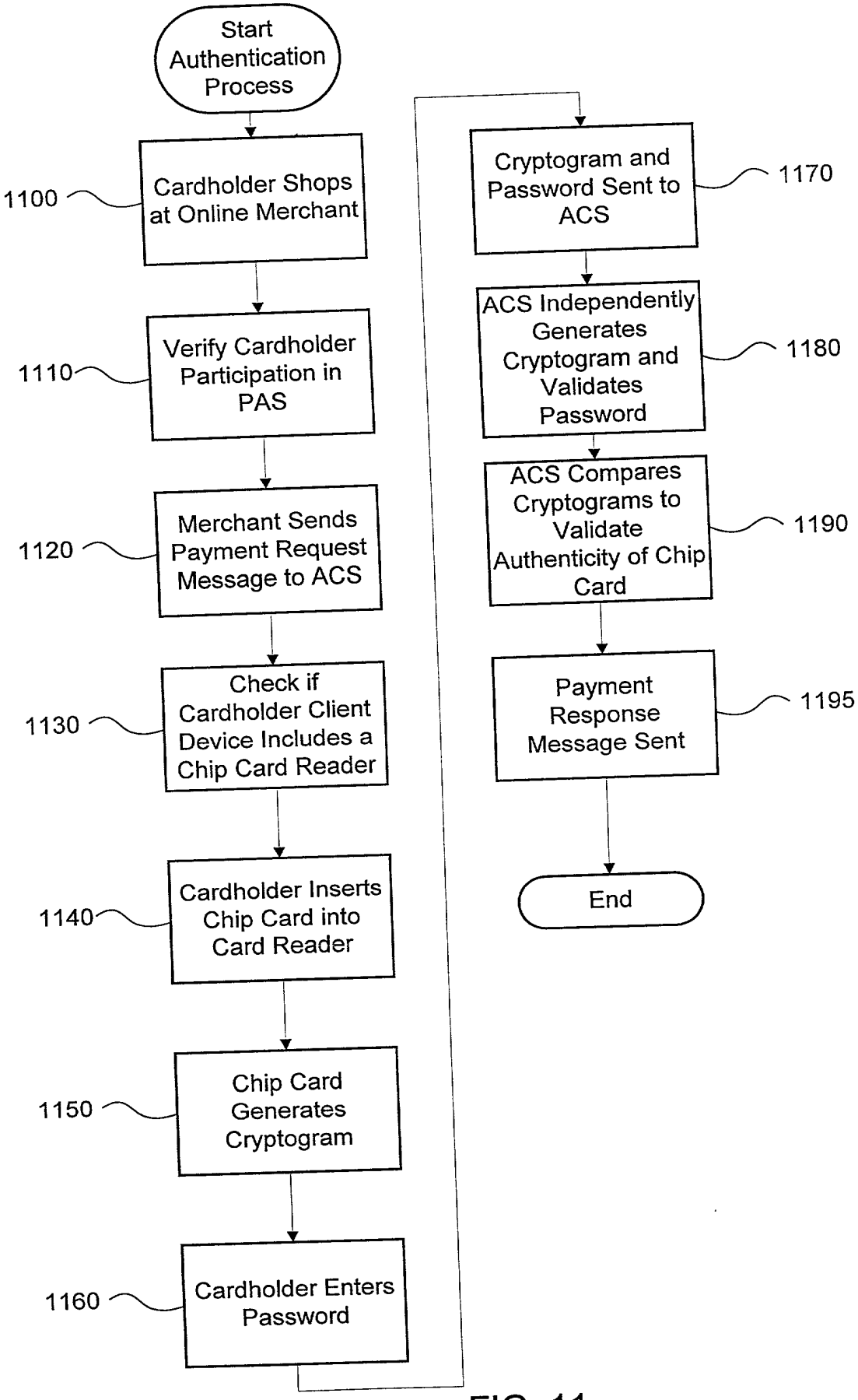

Start Authentication Process
1100
Cardholder Shops at Online Merchant
1110
Verify Cardholder Participation in PAS
1120
Merchant Sends Payment Request Message to ACS
1130
Check if Cardholder Client Device Includes a Chip Card Reader
1140
Cardholder Inserts Chip Card into Card Reader
1150
Chip Card Generates Cryptogram
1160
Cardholder Enters Password
1170
Cryptogram and Password Sent to ACS
1180
ACS Independently Generates Cryptogram and Validates Password
1190
ACS Compares Cryptograms to Validate Authenticity of Chip Card
1195
Payment Response Message Sent
End

FIG. 11

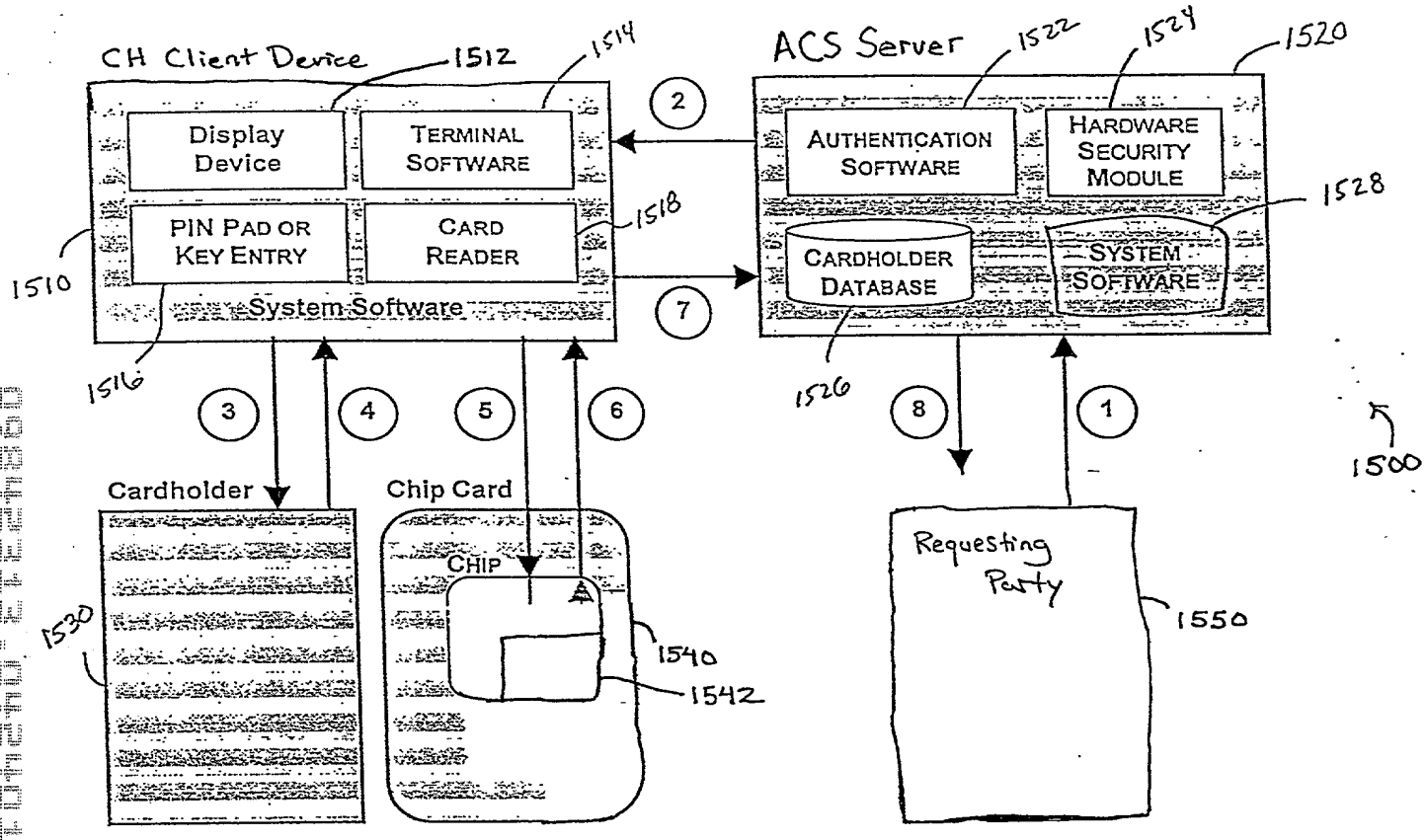


FIG. 12
Payer Authentication Service
with Chip Card

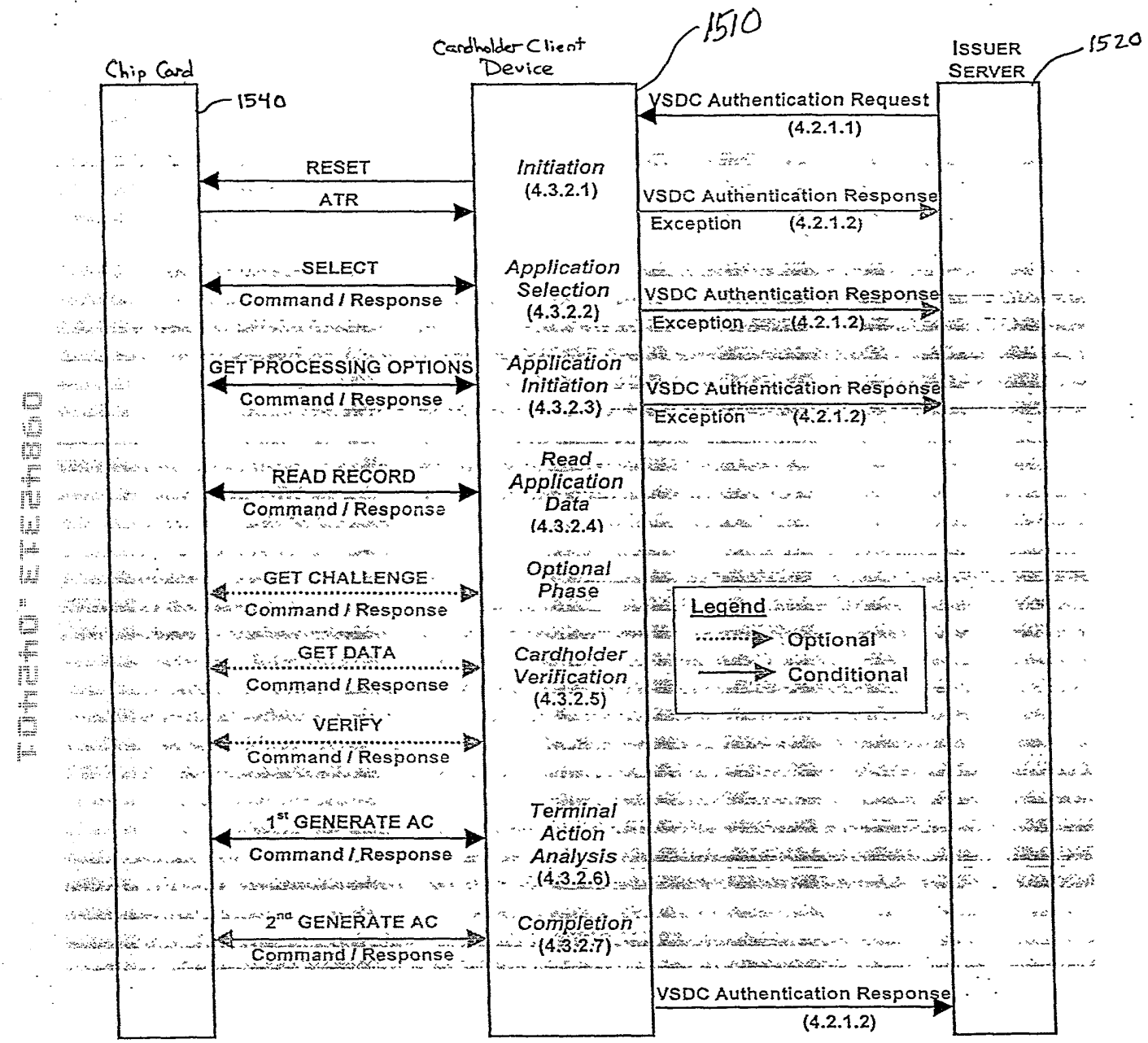


FIG. 12A
Detailed Message Flow for
Payer Authentication Service
with Chip Card

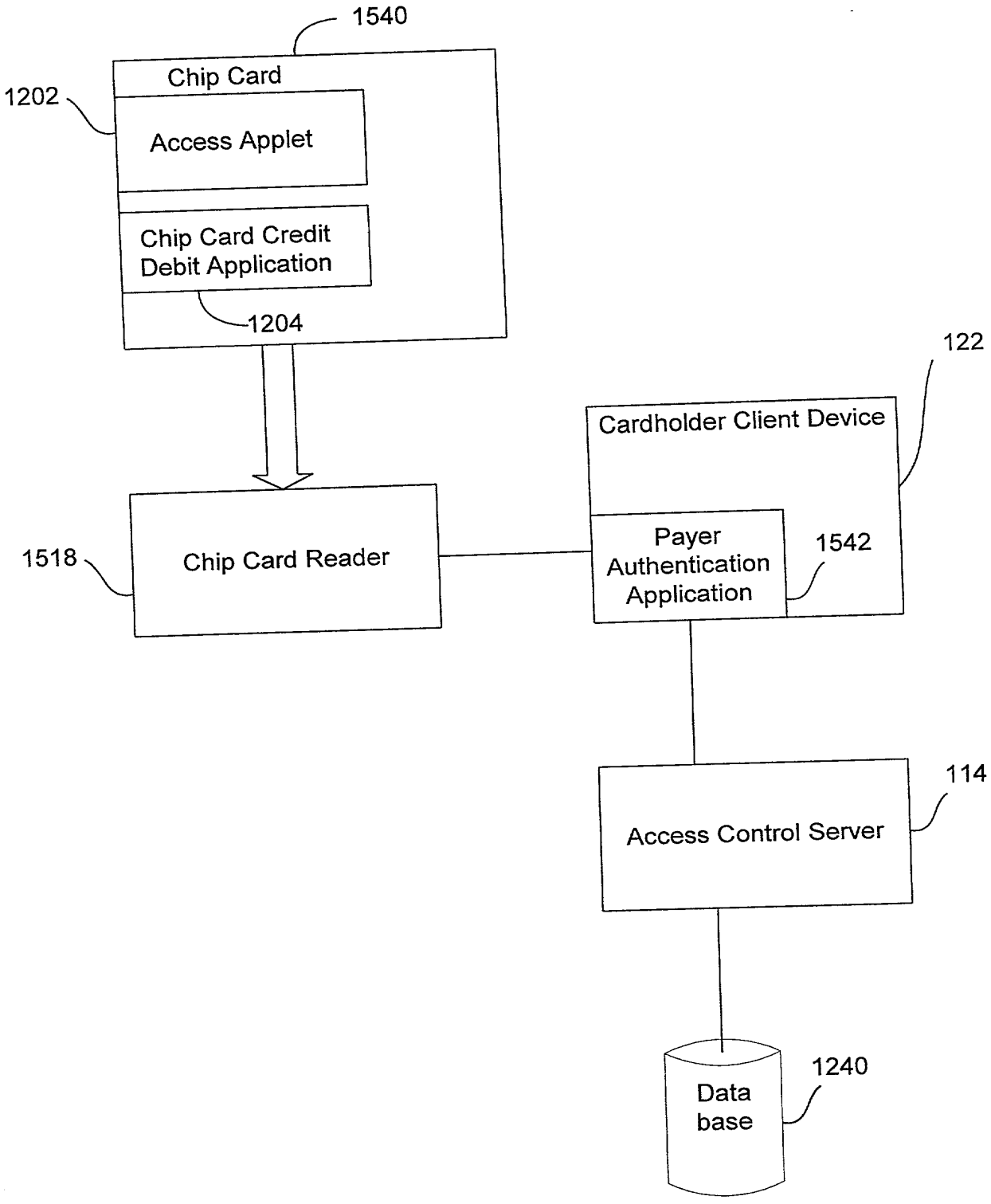
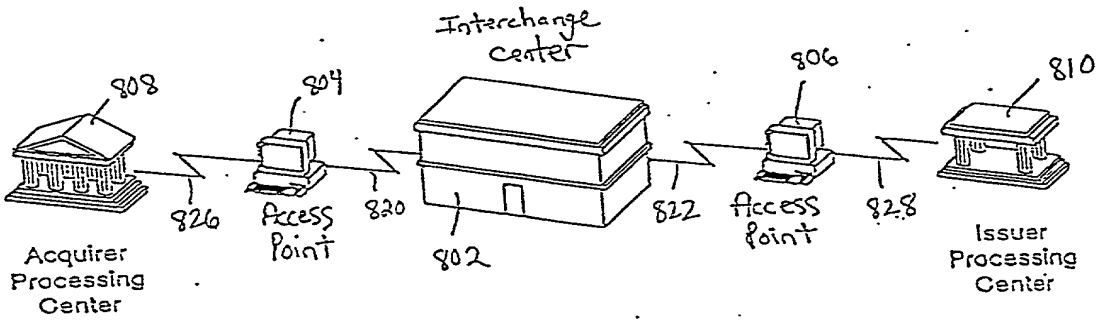


FIG. 13
PAS with Chip Card and
Universal Access Application



800 ↗ Telecommunications Network

FIG. 14

Interchange Center Systems

840 ↘

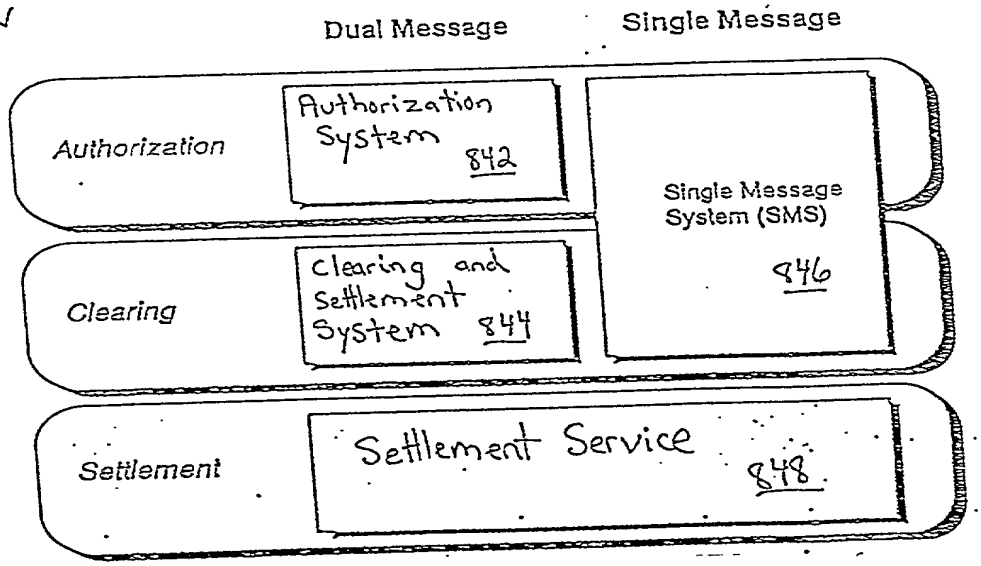


FIG. 15

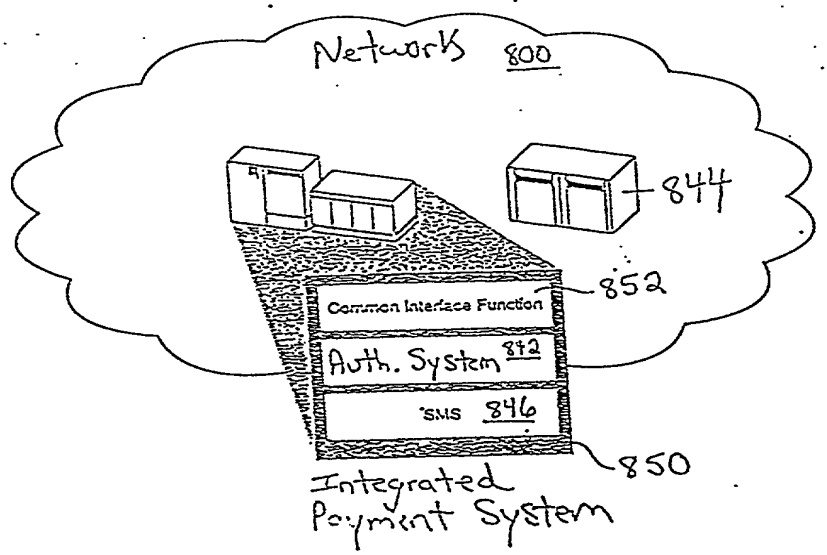

Network 800
844
852
Common Interface Function
Auth. System 842
SMS 846
850
Integrated
Payment System

FIG. 16

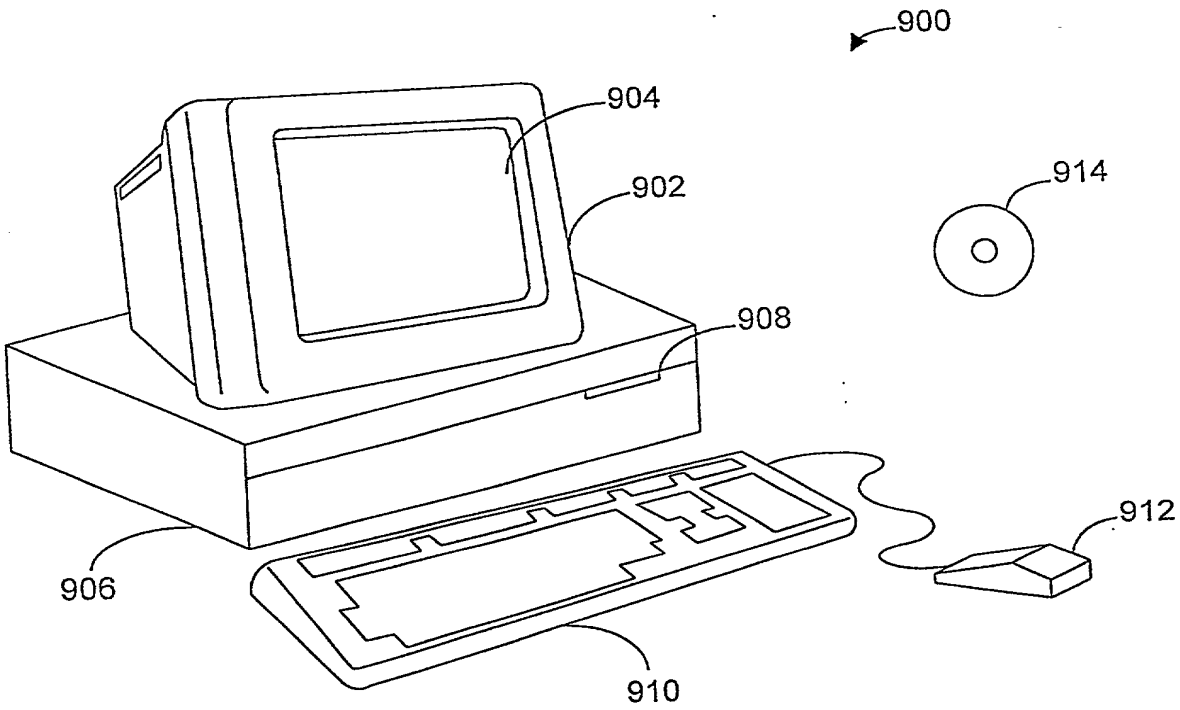


FIG. 17A

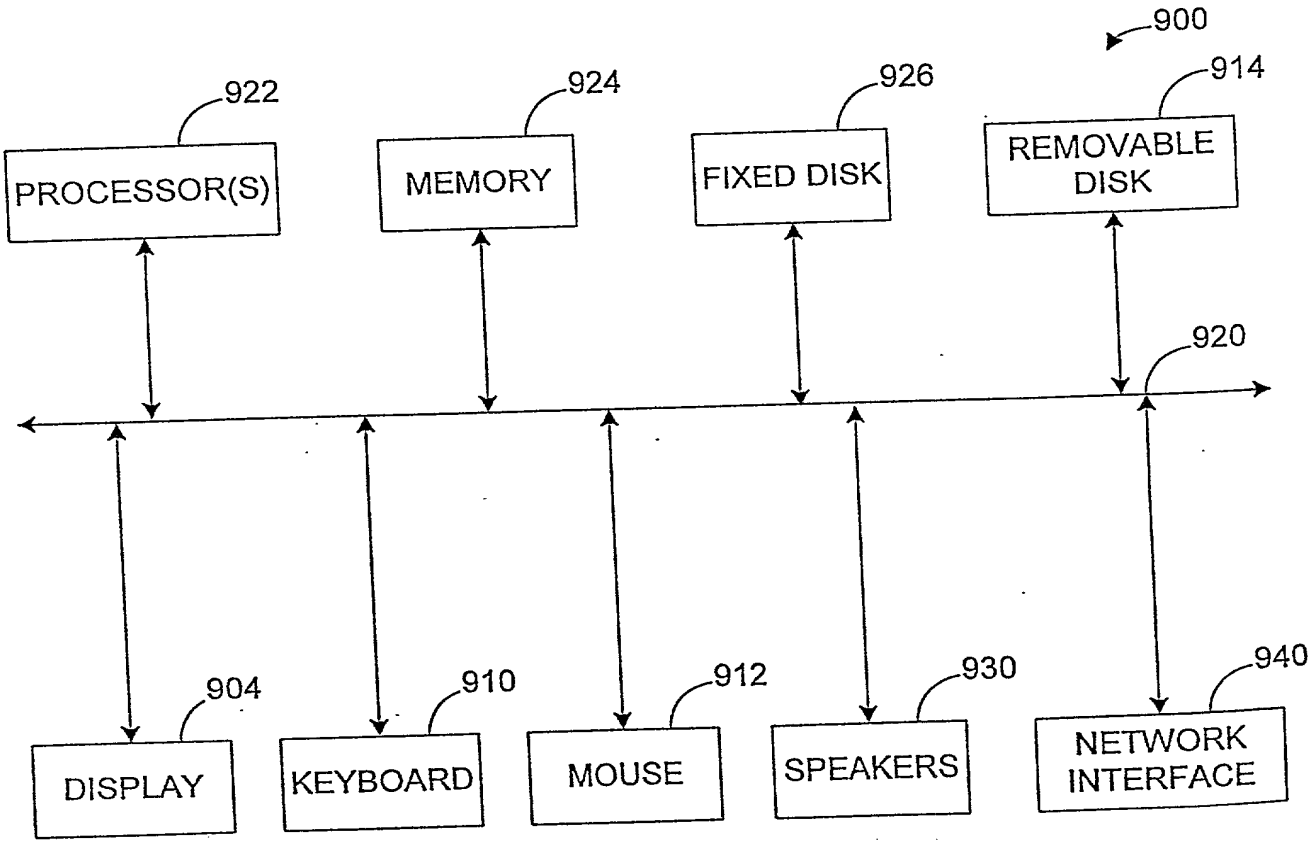


FIG. 17B